

THE OPTICAL MAGIC LANTERN

JOURNAL

AND

PHOTOGRAPHIC ENLARGER.

EDITED BY J. HAY TAYLOR.

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CONTENTS.

	PAGE
Notes	131
Slide Illustrating Sound Waves	132
Supply of Oxygen to Flames	134
Stand for Opaque Screen	135
Singular Experience in Slide Making	136
The Decline of Lantern Lectures	138
Summer Work.. .. .	140
Patents	141
Editorial Table	141
Correspondence	141
Notes and Queries	142

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Notes.

It may not be generally known that all stone bottles of ginger beer which are ordered by the Prince of Wales are “sighted” by the manufacturers (in order to ascertain that no foreign particles are present), by means of a reflecting limelight apparatus, which enables them to be seen into with as much ease as if they had been made of transparent glass, instead of stone.

It has been stated, that within a few years the best seats in the principal London Theatres will each be provided with an opera glass, secured to an adjustable stand or arm, which will hold them in position in front of the user's eyes.

CERTAIN improvements in illuminating by incandescence are said to be on the verge of being introduced, and it is claimed that a particular incandescer which can be applied to paraffin lamps, will increase the illuminating power 40 per cent. and at the same time decrease the consumption of oil 33 per cent. Should this prove correct, lanternists will await with interest the introduction of this incandescer.

MR. W. BASHALL, 21, Holland Villas Road, W., has succeeded Comr. Gladstone as Secretary of the Lantern Society. Duties in connection with the Royal Navy will shortly call Comr. Gladstone to foreign lands.

It is always pleasant to hear of the good relations existing between employer and employee. In the lantern-slide line we think the

following stands without a parallel. Messrs. E. G. Wood, of Cheapside, have had for nearly fifty years in their employ a family of clever slide artists, extending to three generations, and as the grandson of the first artist has a young son who has also marked talents in this direction, it would seem that there is every chance of the succession being assured.

* * *

In our last issue, when commenting on the excellent management of the lantern at the Royal Institution on the occasion of Dr. Dallinger's lectures, we omitted to couple the name of Mr. J. W. Garbutt, of Upper Armley, Leeds. Mr. Garbutt has for a long time had the entire management of the lantern for Dr. Dallinger, and the excellence of his management has often been commented upon.

* * *

THE late P. T. Barnum used to have the "greatest show on earth" in connection with the circus. Is Mr. Walter Tyler, of Waterloo Road, S.E., trying to follow suit in the lantern stock line? Within the last twelve months he has bought up the stock-in-trade of three large dealers, the last being that of Messrs. Thomas & Co., of Acton, which was lately advertised in *The Optical Magic Lantern Journal*.

* * *

AN optical and photographic exhibition is to be held at the Westminster Aquarium, from September 11th to October 6th.

* * *

ON July 2nd we were the recipients of a handsome present from Mr. F. Brown, the maker, given, it was said, in recognition of the way we had defended the use of saturators in general. When the numerous folds of tissue paper had been undone, we found a Gridiron saturator of superb finish, the body of which was silver plated and polished bright, the tubes and fittings silver plated and frosted, with name and taps lettered and shaded in blue enamel. Mr. Winter, the London Manager of Mawson & Swan, when admiring the apparatus, took its measurement, and said "you must let us send you a glass shade and stand for this"—and in due course they arrived. The saturator at present stands ready charged for use, upon blue velvet, and so perfect is the finish that it would almost seem a pity to handle it without gloves. We take this opportunity of thanking Mr. F. Brown, Mr. Winter and Messrs. Mawson and Swan for their kindness, and should any of our readers wish to inspect the gift, we will be pleased to show it any time by appointment.

For many years past the old-established firm of J. Bernard & Sons, the well-known artists' colour business, has been conducted by Mr. T. Claude Fairhead on behalf of the executors. This gentleman, in conjunction with Mr. F. Capel Cure, has purchased the business and plant, and will in future carry it on under the same name. With the same old name and two such energetic partners as the gentlemen mentioned at the helm, a great increase of business may be looked for.

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Lantern Slide Illustrating Sound Waves.*

—:O:—

BY GEO. M. HOPKINS.

—:O:—

In demonstrating the theory of sound, it is usual to illustrate the condensations and rarefactions of air which produce sound waves by light and dark bands, which give an idea of the condition of the air at any instant in which it is transmitting sonorous vibrations. But these bands do not represent the progression of the sound waves. For an illustration of this, reference is often made to the concentric undulations produced on the surface of a mill pond by a pebble dropped in the water. This depends for its value upon the student having noticed the mill pond phenomenon and upon his ability to realise that these spreading rings relate only

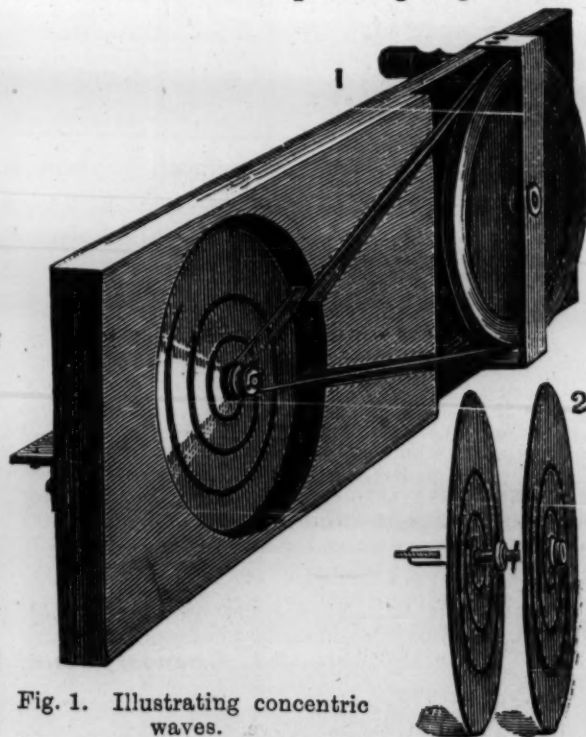


Fig. 1. Illustrating concentric waves.

* *Scientific American*.

to the feature of progression as it would present itself in a section taken through a sound sphere in any plane that would intersect the centre of the sphere at which is located the source of sound.

The mechanical slide shown in Fig. 1, when projected, is capable of producing on the screen a series of concentric rings of light and shade, representing the condensations and rarefactions of a succession of sound waves, and these waves, beginning at the centre, constantly enlarge in circumference until they disappear at the periphery of the disc. This effect is produced by means of two thin metal discs arranged to revolve on the same axis, and each provided with a spiral slot extending from centre to periphery, the slot of one disc being oppositely arranged with respect to that of the other disc. One disc is secured to a sleeve which fits on a stud supported by a fixed bar extending across the opening of the slide. The other disc turns on the sleeve. The sleeve and the disc which turns upon it are each provided with a small pulley. One of these pulleys is slightly larger in diameter than the other, so that when the two discs are projected and revolved rapidly in the same direction, one turning at a very slightly increased speed causes the points of intersection of the spiral slots to move outwardly and thus produce on the screen a series of light rings, which increase in diameter like mill pond waves. To cause the light rings

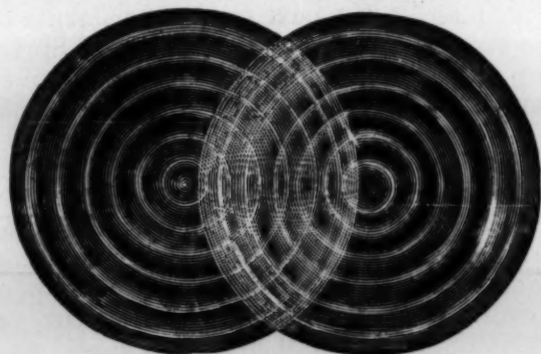


Fig. 2. Interference.

and intervening dark rings to blend into each other, the slide is thrown a little out of focus.

To show interference of sound waves two images of the slide may be projected, one being

superposed on the other as shown in Fig. 2. This is easily done by arranging at a suitable angle in front of the lantern objective a series of glass plates, such as are found in a glass plate polarizer, as in Fig. 3. A portion of the beam is transmitted, forming one image on the screen, and a portion is reflected upward and intercepted by a mirror which throws it upon the screen, forming a second which may be made to coincide with the first, or it may be made to overlap the first images so as to produce the interference effect shown in Fig. 2. In this case the centres or wave sources are separated more than the semi-diameters of the discs, and the interfering waves approach each other from opposite directions. In Fig. 4. are shown, diagrammatically, superposed wave discs with centres one wave length apart. The waves' "crests" coincide, and re-enforcement along a line joining the two centres is the result. If the centres were half a wave length apart, the "crests" would alternate and one set of waves would neutralize the other.



Fig. 4. Reinforcement.

In Fig. 5 are shown diagrammatically two discs of different size produced by dividing the beam before it passes through the objective, projecting the two parts of the beam with objectives of slightly different



Fig. 5. Beats.

power. In this case, owing to the difference in the size of the discs, the relative velocities of the wave rings differ, so that the waves of one series overtake the waves of the other series at *a*, thus illustrating the phenomenon of beats.

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EXPERIMENT. — Write with dilute nitrate of silver, which when dry will be entirely invisible, hold the paper over a vessel containing sulphate of ammonia and the writing will appear very distinct, the letters shining with the metallic brilliancy of silver.

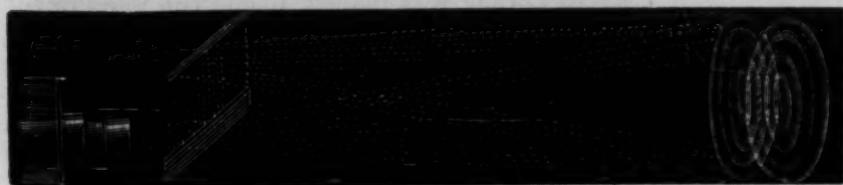


Fig. 3. Arrangement for projecting two images on the slide.

The Supply of Oxygen to Lantern Flames.—No. III.

By W. H. HARRISON.

Some researches were afterwards made on the same subject by Dr. J. W. Draper, of New York, to whose records I have not access at the present moment, but will try to find them a few days hence.

The late Professor Graham investigated the subject scientifically at a later date, and communicated the results to the Royal Society. His paper was entitled, "The absorption and dialytic separation of gases by colloid septa," and was published in part by that Society in "Philosophical Transactions." Several parts were struck out in pencil from the author's manuscript, so that Professor Graham's full acknowledgment of the earlier work on the subject performed by Dr. Mitchell and Dr. Draper, did not appear in "Philosophical Transactions" with the rest of the memoir in 1866. The paper in full, free from these excisions, will be found in "Chemical and Physical Researches, by Thomas Graham, F.R.S., collected and printed for presentation only. Preface and analytical contents by Dr. Angus Smith, Edinburgh, 1876." Graham said in the paper: "The penetration of rubber by gases may be illustrated by their passage into a *vacuum*, as well as into an atmosphere of another gas, in the old experiments of Dr. Mitchell"; but, as we have already seen, Dr. Mitchell did experiment upon the passage into a vacuum, as in the case of the column of mercury in an inverted vessel over a mercury trough. Professor Graham then describes practically the same arrangement, but somewhat modified; he used a glass tube closed at its upper end by a thin plate of stucco, to support the film of india-rubber fixed over the top; the only difference is the insertion of the stucco. The way in which Graham fixed the edges of the india-rubber film, was to bind them round with copper wire and to cement them at the edges in contact with the glass, with gutta percha softened by heat. With the barometer and thermometer at invaring heights, he found the following to be the rates of penetration of rubber by equal volumes of gas:—

	Time.
Carbonic Acid	1·000
Hydrogen	2·470
Oxygen	5·316
Marsh Gas (CH ₄)	6·325
Atmospheric Air	11·850
Carbonic Oxide	12·203
Nitrogen	13·585

Graham found excessively thin films of rubber to be efficient for the purpose, and used one but slightly over a two-thousandth part of an inch thick. He says: "Such a film of rubber appears to have no porosity, and to resemble a film of liquid in its relation to gases—differing entirely in this respect from a thin sheet of paper, graphite, earthenware, or even gutta percha, as will appear hereafter." He also pointed out that the phenomena of gaseous penetration are due to each gas becoming liquid inside the rubber film, and then evaporating upon the other side.

He found that the rubber film becomes more permeable to gases as the temperature rises, within a certain range; it renders the rubber softer and more like a liquid. This was distinctly observed in operating with silk cloth varnished on one side with rubber, which was penetrated by the air from the atmosphere, passing into a vacuum at the following rates per square metre of surface:—

At 4° C, by 0·56 cubic centim. of air in 1 minute.
" 14° C, by 2·25 " " " "
" 60° C, by 6·63 " " " "

With a colloid septum properly supported over a vacuous space, as the velocities of nitrogen and oxygen passing separately had been observed to be as 1 to 2·556, the mixed gases found on the other side, should, according to calculation, consist of 40·46 oxygen and 59·54 nitrogen, in 100 volumes. With the apparatus Graham used, he found 42·53 of oxygen in the dialysed air. He next tried experiments on a more extensive scale, by the use of a Sprengel pump with its joints well closed, in the manner specified by Dr. Sprengel. Using a common elastic carriage bag, measuring 18 in. by 15 in., made of india-rubber between double cotton cloth vulcanized, one cubic inch of air was drawn through in an hour, or at the rate of nearly three cubic inches per hour for one metre of cloth; the air contained close upon 40 per cent. of oxygen. Next he tried four yards of vulcanized india-rubber tubing, closed at one end, and the rate of penetration was found to be one-fifth of that of the previously used rubber cloth. Then he tried thin sheet rubber, not vulcanized; it was one-millimetre in thickness, and made into a bag having a total surface of 231 square inches; a double thickness of felted carpet was placed inside the folds of the rubber to keep the sides apart. Of the dialysed air, 11·45 cubic centimetres were collected in four hours, containing 41·48 per cent. of oxygen, with a sensible trace of carbonic acid. From a larger bag of thin sheet rubber, with a surface of 640 square inches, and its sides distended

with sawdust, 21.35 cubic centimetres of dialysed air were obtained in one hour, containing:—

Oxygen	..	..	..	41.80
Carbonic Acid..	..	..	..	0.94
Nitrogen	..	..	..	57.26

100.00

Increased thickness of the rubber does not seem to tend to increase the proportion of oxygen.

Little balloons of india-rubber were next tried; they were filled with sawdust against which each balloon collapsed, and the rubber film still maintained a thickness of one-fiftieth of a millimetre. The rubber was not vulcanized. For each square metre of a surface of this kind, the passage of dialysed air was found to be at the rate of 16.9 cub. centims. per minute, or about fifty times faster than through a sheet of rubber one millimetre in thickness. When several such balloons are used at once, the air will pass through faster than a single Sprengel pump will carry off the dialysed product.

Graham says that the greatest amount of aerial dialysis per square metre was obtained by means of a rubber bag, larger than usual, and weighing 1.55 gm. When filled with sawdust and exhausted, this bag still remained of 143 millims in diameter, and with a surface therefore of 0.0642 square metre. The air which passed through amounted to 17.05 cubic centims. in ten minutes, the thermometer about 20° C. This air gave 40.7 per cent of oxygen. For a square metre of surface, this is the passage of 26.5 cubic centims. per minute, the highest he had observed.

His next experiments dealt with the dialysing of air with silk varnished on one side.

—:O:—

A Stand for Opaque Screens.

By R. Moss.

Now that the longest day of this year can be spoken of in the past tense, and numbers of the large army of lanternists will be devoting some of their time to overhauling their lanterns and appliances, a few suggestions on the above subject, based on the experiences of three seasons, may perhaps be acceptable.

Two statements concerning opaque screens are generally accepted; by their use a larger proportion of the light is arrested, and consequently a much better picture obtained than with a non-opaque screen, the improvement being variously estimated at from 10 to 30 per

cent. The other statement is that opaque screens can only be used in a fixed position secured to a beam or wall. It is the repetition of this by the Doctor in the OPTICAL MAGIC LANTERN JOURNAL for July, that induced me to write this article.

I certainly endorse the first statement respecting the improvement with an opaque screen, and this more especially for those who use oil illumination. With regard to the other assertion, I have proved by actual experience that opaque screens can be used much in the same way as ordinary linen sheets, and that they can be fixed quickly in position by the use of a very simple stand, which I will here describe:—

Some may perhaps take exception on the ground of bulk and difficulty of transport, but this should however form no obstacle when all the advantages are considered. There are few lantern outfits but require a conveyance of some sort, and it is just as easy to carry an opaque screen, 10, 12 or 14 ft. long, as a number of smaller packages; this of course applies especially

Fig. 1.

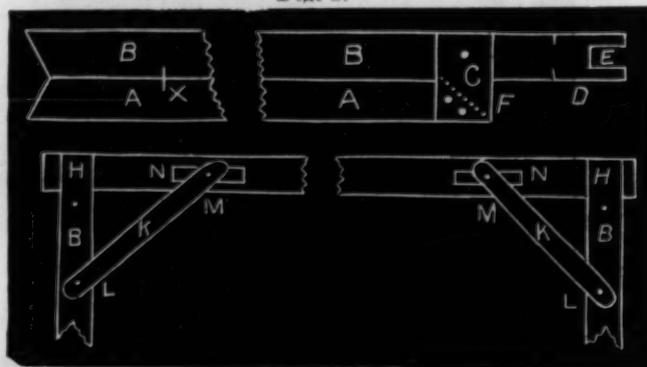


Fig. 2.

to the country where oil is almost generally used. I have, with one assistant, fixed a 12-ft. opaque screen and had two lanterns all ready to commence in twenty-five minutes after arriving at a village, the room being already full of people. I have also fitted up ready for use, the screen only (as a trial), in three minutes, which I think is as quickly as any other screen can be so erected and stretched. Of course all opaque screens are fitted with bail and roller. The stand or elevator should consist of two pairs of poles, one about a foot shorter than the other; these are fitted together by a hinge in pairs to open like a step ladder.

In fig. 1, A is a short pole 13 ft. long, 2 by 1½ inches. B, a longer pole, 14 ft. long, 2 by 1½ inches. C, two iron plates, 4 by 4 in. by ½ in., forming the hinge; it is secured by screws to each side of A, and works on a single bolt ¾ ins. through B, with nut on one side and rose head on the other. X is a pin fixed in centre of one

pole to keep them level. E is a slot cut in the pole B, just long enough and wide enough to allow the bail upon which screen is fastened to fit into it, but not too easily. D are iron plates, $1\frac{1}{2}$ in. coach hooping, about 8 inches long, secured by two $\frac{1}{4}$ -in. bolts and nuts to the pole, and by four small screws to the part where slot is cut out. F. This end of shorter pole, indicated by dotted line, being under plate (A) is tapered just enough to allow of poles opening only about 4 feet at bottom; this is quite sufficient to give steadiness, but it can be used when only open about two feet or so.

These poles, as indicated above, fit one each side of the bail, as shewn in diagram 2, and are prevented from moving sideways by either wood blocks or pieces of angle iron, H, which it is advisable to put a little on the angle so that

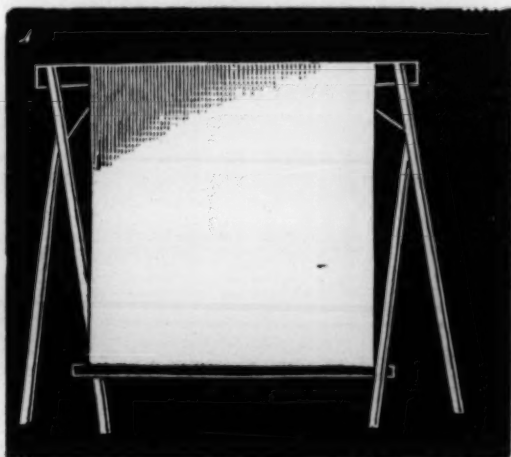


Fig. 3.

poles are about a foot wider apart at bottom than where they fit on the bail, as this gives increased steadiness; K represents a light iron stay, 36 by 1 by $\frac{1}{4}$ in. secured to pole (B) by a stout screw (acting as hinge) L, the other end having a hole drilled in it to fit over a pin, M, and secured by a button or spring. (N) This stay I did not find necessary at first, but as after a season's use without it, the joints at H became rather shaky, it made the affair perfectly secure, and at any rate gave me peace of mind during the exhibitions.

In order to erect screen it is simply necessary to lay screen face downward, slip poles between blocks, H (which should be fitted on both sides of bail), fasten stays K, see that ropes to lower screen are free; either get some one to hold them to prevent screen rolling down while being elevated, or better still, secure to a hook on front of pole (A); place bottom of poles against the wall where screen is to stand, then take hold of poles near to screen, one person to each side, and raise hand over hand, in the same way as a

ladder when upright; draw pole (A) forward and lower screen; it will then appear as in Fig. 3.

The whole of my stand (not screen) with the exception of iron work (which any blacksmith will make for three or four shillings) being home made, did not cost more than seven or eight shillings. The great advantage is that by placing screen at an angle you can thus use the whole space of a room by placing the lantern at the side. Stands of smaller sizes, such as for 8, 9, or 10 ft. screens, could be made much lighter than the dimensions I have mentioned, and should any reader find my suggestion of value, I should be glad to give any further information required.

A stand, of the style mentioned, has been used in our Band of Hope work for three seasons with perfect success.

—:O:—

A Singular Experience in Lantern Slide Making.—II.

By G. THORNE.

I made two resolutions on my way home, one was to bring someone with me as a possible witness, and another was to take some photographs of the road during the continuation of the sounds. Having made the acquaintance of a young medical man in the neighbouring village, who had just taken up photography as an amusement, what could be better than to ask him to join me in an excursion for the next day, should he be fortunately disengaged and willing, and the weather suitable? As luck would have it he gladly acquiesced; so saying nothing of the real motive of our trip, the next morning found us favoured with splendid weather in the locality where my experiment was to take place. I pointed out some pretty view for my companion to take from the same spot in which I had worked myself, whilst I fixed up my camera on the road in such position and focus so that anything visible about the position the sounds had apparently proceeded from, would be included in the picture.

I had previously asked my friend that in case he heard anyone singing coming along the road he would signal me by a whistle. My request somewhat puzzled him, but he readily promised compliance. I told him I would explain afterwards. I had not long to wait, the warning whistle sounded. I made several exposures during the time the incidents were supposed to last, although nothing was visible. I had no doubt the whole

tragedy was again performed, when I heard my friend rapidly running along, and soon quite out of breath, scrambling over the fence into the road. His blank look of amazement at seeing me standing quietly by the camera and no one else about, was amusing.

"Where are they—what's up?" he ejaculated as soon as he had recovered his breath, telling me he quite thought he had heard somebody murdered, if sounds did not deceive him, for he heard precisely the same in every particular as I had on the two previous occasions; but what was curious I heard no sounds whatever, as I stood photographing on the road. I then told him all that had occurred, and why I so particularly wished his companionship to corroborate or refute my impressions. He promised to make an exhaustive enquiry in the neighbourhood, and let me know the results; in the meantime I was to develop my negatives, which we both hoped would record something abnormal. Not being prepared on my trip to do more than make exposures, the development being done on my return home, it took some few days to get the necessary appliances and chemicals to work with in that out-of-the-way spot, the doctor's supplies being of doubtful quality, and not wishing to risk spoiling the plates, I deemed it better to wait for reliable materials.

We went to the place several times after that, before the development was proceeded with, but heard no more. The result of our enquiries also failed to supply any information until happening to question an old ex-police officer which came to his surgery for advice, ascertained that about fifty years ago a young farmer who had won a large prize in a lottery, was watched after drawing his money from the bank, murdered and robbed on his way home somewhere between the White Horse Inn and the toll bar on the Henchly Upper Road; but the murderers were never discovered, as far as he knew. It was a lonely road, nobody was suspected. The idea entertained was, that someone from a distance, knowing about the business, had watched and waited his opportunity and quietly followed and stabbed him to the heart, emptied his pockets and decamped. Anyway, the money, about two thousand pounds in Bank of England notes, was never heard of, and gradually the affair passed out of mind. One thing was certain, the notes had never been presented up to the present time or he would have been sure to have heard of it, as he had the business in hand with a couple of men sent up from headquarters, but not the slightest clue had ever turned up.

It happened to be winter, everything was against discovery; the roads were hard as nails, and a heavy snowfall had blocked the road for a week or more, the lower road being used by preference, and it was not until the snow melted that the body was discovered; by that time the perpetrators had got clean away. Nothing was missing as far as could be ascertained but the money and the pocket-book in which we ascertained the drawer carefully stowed it away. Why the notes had never turned up puzzled him; he did not suppose it ever would be found out now. This information seemed to have considerable bearing on the matter, and in my own mind I felt certain the mysterious sounds were ghostly repetitions of a real occurrence; so was my friend, who was as anxious as myself to see if the negatives would disclose anything. He offered me the use of his dark room, and every precaution was taken to avoid any failure, from a photographic point of view. I first developed the frost scenes taken from that spot, and they turned out excellent pictures, and as the plates were all out of one parcel, there was no reason why the others should not be all right. The first exposure was developed with the utmost care, but looked foggy and queer. "No good," we both exclaimed, as we intently watched the process; much over exposed, or the light has got to it somehow. I concluded anyway that it was no good, but put it in the hypo and tried the next; this was the same, and so were all the rest, hopelessly fogged, much to our chagrin and disappointment, although what we expected we hardly knew.

What we did not expect was utter failure, for not even the landscape showed up; so one after the other were slipped into the hypo dish, whilst we took a turn outside to smoke a cigar and chat over our failures. My friend was called into the house for something or other, and had left me but a few minutes when I heard my name called with considerable gusto from our dark room. I at once answered his call, and found him intently examining one of the plates. Sure enough they were not failures, after all; each plate showed one or another phase of the occurrence, as we supposed we had heard it, beautifully distinct and absolutely sharp, but rather thin. Here, one was a single figure of a young man twirling a stick in his hand, with three figures in the distance—one showing the very act of murder, the face of the murderer perfectly made out, as were the faces of all in one or other of the negatives. Another showed the abstraction of a large pocket book curiously ornamented. Another,

the retreating figures, with the murdered man lying on the ground. A peculiarity in all these plates was a kind of veil that I had never noticed on my negatives before, at any rate, with that make of plate, and which had deceived me during the developments. Anyway, here were some extraordinary results beyond anything I had before experienced, and such that might possibly lead to the elucidation of a mystery. Who could tell?

The next step was to make good lantern slides from them, and also transparencies for reproduction in case of accidents. It so happened that a bazaar and lantern entertainment were to take place shortly at the adjoining town that was sure to be patronised by most of the leading inhabitants. The affair was to be continued for three days, concluding with the lantern show. The doctor being well known, there was no difficulty in getting my slides put on the screen with the rest, without giving any explanation about them, at least beforehand, as we had agreed not to mention this matter to anyone, until this show had taken place; as several local amateurs, having contributed slides, were anxious to get them shown, ours were reserved till towards the close of the entertainment; as it happened it was very lucky they were. Those to whom the slides belonged were expected to describe them, or get someone to do it for them. Ours came on, and the sensation they caused will not readily be forgotten. The doctor explained "they were genuine ghost pictures of an occurrence that had taken place years ago in that very neighbourhood. The older residents might remember a murder that was never found out somewhere about fifty years since." He had explained so far when there was a commotion in the hall, the lights were turned up, and the exhibition brought to an abrupt end; carriages were called, and the greatest excitement prevailed. The Mayor of the place was carried out in an insensible condition from which he never recovered. He was the actual murderer. After his death his executors found the identical pocket book with the notes intact in a carefully secured packet. The book was faithfully represented in the photographs. The portraits of the other two men were recognised, but both had been dead some years. It is needless to say the stir this discovery locally made; the affair was hushed up, although the faces had been recognised by several persons present. The money was paid to the brother of the murdered man, with interest, with a hint the less said about it the better, as the tragedy had taken place so

long ago, and the reputation of some living might be injured by publicity.

The brother was a highly respectable farmer in the locality, and, I am proud to say, one of my best friends, proving that not only is truth stranger than fiction, but that the very air we breathe is peopled with invisible records of those who have passed away and occasionally permitted in some mysterious fashion to influence the lives of those who have not yet shaken off the mortal coil.

—:O:—

The Decline of Lantern Lectures.

BY WALTER D. WELFORD.

It is beyond question that lantern lectures are gradually declining in public interest. First, however, let me distinguish between a lantern lecture and a lecture illustrated by lantern slides, for there is a much greater difference than some may imagine at the first glance. A lantern lecture is the display of a series of slides, described or identified as each subject appears. The other is a lecture with some slides to more clearly illustrate certain points of it.

Much has been written of late upon the question, and indeed I hardly know whether these notes will convey any new ideas. Mr. Perkins in a recent issue goes very much to the root of the matter in a general way, and with his conclusions we must pretty well all agree. But there are still other considerations which he has not touched upon, or at least, he dismissed them in a few words.

At the doors of the ordinary photographic society or club, much of the decline of public interest may safely be placed. In the old days lectures were thoroughly prepared and delivered by able men, with experienced operators at the lantern. In those days the interest was quite as much in the lecture and lecturer as in the projections upon the sheet. So much care, too, was taken to make the whole entertainment work smoothly, that things were rehearsed beforehand. With the introduction of dry plates, the enormous increase of amateurs, and the facility with which slides could be made soon brought about an abrupt change. From one or two good, we jumped to fifty fair and indifferent to bad shows. Let us then study these latter.

First the jumbled up collection of a society; good enough lantern but badly worked; humour imported into the proceedings by slides wrong way round, upside down, or in the wrong order;

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The front view of the house is fearfully drunk, owing to the tilting of the camera, and the view from the garden only takes in the kitchen window of the house. Mr. Smith up a tree looks as though he is surprised at being there, and wondering how in thunder he's going to get down. The young Smiths is so dense a slide, that whether the children are boys or girls is left for individual opinion. After this, comes "some pictures taken in Norway," by Mr. Jones; then a mixed collection by Mr. Brown, ranging from some awful attempts at home portraiture to one or two sunset effects. Mr. Robinson contributes a few badly stained landscapes, and this is followed by micro-photos which can be put in the lantern any way up. The lecturer—no, let's have a little mercy—the describer of the slides reads out the titles from a written list, being corrected now and then when a slide appears out of order by the member himself, who is of course present with lady friends. And this is termed a lantern display.

Then there is the personal narrations of foreign travel. This is usually a big event for the member himself, and occasionally the society make big efforts also to make the evening a success. The ordinary meeting room is not large enough, and so a special hall or place is secured for the event. Every lady and gentleman friend the member can induce to come by free distribution of tickets will be present of course, and a good sprinkling of other members and their friends. The member, resplendent in evening dress, is on the spot early of course, to see that the lantern is all right, and to instruct the operator. He may know nothing of lantern work, but yet at his own lecture he worries and fidgets about the light, the screen, and other matters. With profusion of compliment he is introduced by the chairman, and commences with some remarks about his work not perhaps being equal to that of professional slide makers, but, &c., &c. The lecture itself gives but little idea of the country or its life and character, but consists of explanations of his own con-

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The profuse circulation of prize slides by our periodicals has also had an ill effect; at least it is so when the exhibition of them is made an open night, the attendance of friends and the general public being solicited. To start with, the collection must be a very mixed lot, owing to the numerous classes into which the competition is divided. The descriptions are scrappy in the majority of cases consisting of the title only, and even when any information is given, it is usually of interest to photographers solely. The slides are numerous and are rushed through, the lecturer or describer reads at random, and lastly the public cannot understand the placing by the judges. When we ourselves oftentimes are puzzled by judging eccentricities, how can we wonder at the general non-photographic public finding fault. Moreover, the friends and relations of members that attend are apt to be attracted by humorous subjects, catchy bits, home-life shots, a pretty face, or a pretty child, and cloud studies.

This deliberate invitation to criticism is decidedly a bad point. The audience is told that this set won the silver medal as the best; that, the bronze medal as second best, and so on. If the views of each particular member of the audience differs from that of the judges, the effect of the display is thereby marred. For this reason also the exhibition of prize slides and "selections" at photographic exhibitions has also done harm.

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the retreating figures, with the murdered man lying on the ground. A peculiarity in all these plates was a kind of veil that I had never noticed on my negatives before, at any rate, with that make of plate, and which had deceived me during the developments. Anyway, here were some extraordinary results beyond anything I had before experienced, and such that might possibly lead to the elucidation of a mystery. Who could tell?

The next step was to make good lantern slides from them, and also transparencies for reproduction in case of accidents. It so happened that a bazaar and lantern entertainment were to take place shortly at the adjoining town that was sure to be patronised by most of the leading inhabitants. The affair was to be continued for three days, concluding with the lantern show. The doctor being well known, there was no difficulty in getting my slides put on the screen with the rest, without giving any explanation about them, at least beforehand, as we had agreed not to mention this matter to anyone, until this show had taken place; as several local amateurs, having contributed slides, were anxious to get them shown, ours were reserved till towards the close of the entertainment; as it happened it was very lucky they were. Those to whom the slides belonged were expected to describe them, or get someone to do it for them. Ours came on, and the sensation they caused will not readily be forgotten. The doctor explained "they were genuine ghost pictures of an occurrence that had taken place years ago in that very neighbourhood. The older residents might remember a murder that was never found out somewhere about fifty years since." He had explained so far when there was a commotion in the hall, the lights were turned up, and the exhibition brought to an abrupt end; carriages were called, and the greatest excitement prevailed. The Mayor of the place was carried out in an insensible condition from which he never recovered. He was the actual murderer. After his death his executors found the identical pocket book with the notes intact in a carefully secured packet. The book was faithfully represented in the photographs. The portraits of the other two men were recognised, but both had been dead some years. It is needless to say the stir this discovery locally made; the affair was hushed up, although the faces had been recognised by several persons present. The money was paid to the brother of the murdered man, with interest, with a hint the less said about it the better, as the tragedy had taken place so

long ago, and the reputation of some living might be injured by publicity.

The brother was a highly respectable farmer in the locality, and, I am proud to say, one of my best friends, proving that not only is truth stranger than fiction, but that the very air we breathe is peopled with invisible records of those who have passed away and occasionally permitted in some mysterious fashion to influence the lives of those who have not yet shaken off the mortal coil.

—:o:—

The Decline of Lantern Lectures.

BY WALTER D. WELFORD.

It is beyond question that lantern lectures are gradually declining in public interest. First, however, let me distinguish between a lantern lecture and a lecture illustrated by lantern slides, for there is a much greater difference than some may imagine at the first glance. A lantern lecture is the display of a series of slides, described or identified as each subject appears. The other is a lecture with some slides to more clearly illustrate certain points of it.

Much has been written of late upon the question, and indeed I hardly know whether these notes will convey any new ideas. Mr. Perkins in a recent issue goes very much to the root of the matter in a general way, and with his conclusions we must pretty well all agree. But there are still other considerations which he has not touched upon, or at least, he dismissed them in a few words.

At the doors of the ordinary photographic society or club, much of the decline of public interest may safely be placed. In the old days lectures were thoroughly prepared and delivered by able men, with experienced operators at the lantern. In those days the interest was quite as much in the lecture and lecturer as in the projections upon the sheet. So much care, too, was taken to make the whole entertainment work smoothly, that things were rehearsed beforehand. With the introduction of dry plates, the enormous increase of amateurs, and the facility with which slides could be made soon brought about an abrupt change. From one or two good, we jumped to fifty fair and indifferent to bad shows. Let us then study these latter.

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Then there is the personal narrations of foreign travel. This is usually a big event for the member himself, and occasionally the society make big efforts also to make the evening a success. The ordinary meeting room is not large enough, and so a special hall or place is secured for the event. Every lady and gentleman friend the member can induce to come by free distribution of tickets will be present of course, and a good sprinkling of other members and their friends. The member, resplendent in evening dress, is on the spot early of course, to see that the lantern is all right, and to instruct the operator. He may know nothing of lantern work, but yet at his own lecture he worries and fidgets about the light, the screen, and other matters. With profusion of compliment he is introduced by the chairman, and commences with some remarks about his work not perhaps being equal to that of professional slide makers, but, &c., &c. The lecture itself gives but little idea of the country or its life and character, but consists of explanations of his own con-

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The profuse circulation of prize slides by our periodicals has also had an ill effect; at least it is so when the exhibition of them is made an open night, the attendance of friends and the general public being solicited. To start with, the collection must be a very mixed lot, owing to the numerous classes into which the competition is divided. The descriptions are scrappy in the majority of cases consisting of the title only, and even when any information is given, it is usually of interest to photographers solely. The slides are numerous and are rushed through, the lecturer or describer reads at random, and lastly the public cannot understand the placing by the judges. When we ourselves oftentimes are puzzled by judging eccentricities, how can we wonder at the general non-photographic public finding fault. Moreover, the friends and relations of members that attend are apt to be attracted by humorous subjects, catchy bits, home-life shots, a pretty face, or a pretty child, and cloud studies.

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Another point I should like to mention that has spoilt many displays, and for that reason has exerted a deleterious effect. It is the impertinence of society members showing some of their own slides after a lecture. If the latter was a good one, carefully prepared and interestingly de-

livered, with good slides, the effect is rendered grotesque by the after display of a few mediocre amateur slides of a member's back garden, with a few figures stuck about like plaster figures, wondering what in thunder they are doing.

To sum up I should put part of the decline down to what might be termed "scrappiness." Slides mixed in quality and subject, some described, others not, and lecturers (*sic*) fair to downright bad—mostly bad.

There is the cause, and the remedy is simple; nevertheless the decline cannot now be stayed by any remedy whatever.

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Summer Work.—II.

BY T. PERKINS.

The best plates are those that have thick films, as they suffer less from halation than those that are thinner, and it is well, especially when working in dimly-lighted interiors, to back the plates with one of the preparations sold for the purpose, applied with a brush or roller. I have not found any great advantage from the use of backing papers stuck on to the plates, and, of course, nothing simply placed behind the plates, and not in optical contact with them, is of the slightest use. Celluloid films have some advantages, but, on the whole, I prefer glass, especially when lantern slides are to be made by reduction, as it is difficult to get the films to lie absolutely flat in the reducing camera, and any want of perfect flatness results in loss of sharpness and possible distortion. For a developer I do not know of any better than pyrogallol and ammonia, especially for interior work.

The exteriors of all churches and cathedrals may generally be photographed without any special permission, though sometimes the key of the gate must be obtained before the photographer can enter the church-yard. Before attempting to photograph the interior of a cathedral an order to do so must be obtained of the dean. Churches are now, happily, generally left unlocked in the day time, and the interiors can often be photographed without any hindrance, but if there is any doubt as to whether photography will be allowed or not, it is best to ask permission at the rectory or vicarage, as the case may be, and it will generally be freely granted.

The beauty of an exterior is greatly enhanced by good lighting; moderately bright sunlight falling from one side, which will bring out the details of the carving, and yet

not so bright as to overdo the high lights, while the shadows are still black, is the best. Pictures of well-chosen parts are generally more interesting than general views of the whole, and when the latter are taken it is desirable that such a position for the camera should be chosen as will give the most graceful balance of parts; it is not well to go so close to the building for instance that the east end gable appears higher in the picture than the western tower, or to take the church with the south wall exactly at right angles to the direction in which the lens is pointed. If these few hints are attended to, and the photographer possesses the requisite amount of architectural knowledge to enable him to photograph what is really worth doing, he will find no difficulty in exterior work. When focussing, however, he must remember that since his ultimate aim is a lantern slide, he must get his negatives very sharp. This, however, does not necessarily mean that the smallest stop must be used; when once by stopping down sharpness is arrived at, there is no need to carry the process further.

When, however, we enter the building we shall find our difficulties greatly increased; at times the light may be so weak that we can hardly see the picture on the focussing screen, much less focus it sharply. A lighted candle held by an assistant may sometimes help us out of the difficulty. Then at times we may find considerable difficulty in placing our camera exactly where we wish, owing to the obstacles that interfere with one or more of the tripod legs. Sliding legs are very useful in overcoming these; but the most common difficulty is the presence of windows; if one of these is of white glass, and it comes into the picture, especially when the rest of the interior is dark, it is almost hopeless to attempt to take the photograph, for even if by means of backing and other precautions halation is avoided, the window is apt to be so much over-exposed that reversal takes place. Something, however, may be done by choosing a time of day and condition of the weather that weakens the light coming in through the objectionable window, or possibly we may manage by a judicious selection of our position to hide it by a pillar. It may be well to say that absolute verticality of the focussing screen is necessary, and this can only be determined by a spirit-level or plumb-line, and cannot be judged by the apparent uprightness of pillars, for these in old buildings are often thrust out of the vertical by the weight of roof or tower. When, however, the picture is duly focussed on the screen it is no easy matter to settle what the exposure should be. A

slight green or yellow tint in the glass of the windows, scarcely perceptible to the eye, may make a vast difference in the actinic power of the light.

(To be continued.)

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Patent Intelligence.

The following list, relating to current Patent Applications, is compiled expressly for "The Optical Magic Lantern Journal" by a registered Patent Agent. For further information apply to S. Dicker, c/o "The Optical Magic Lantern Journal," 56, Chancery Lane, London, W.C.

No. RECENT PATENT APPLICATIONS.

18434. 11 July, 1894. Samuel Joseph Levi and Alec James Jones. Improvements in portable optical lanterns.
 12018. 21 June, 1894. James Edward Anderson and Alfred Wrench. Improvements in optical lantern burners or jet for limelight.
 12230. 23 June, 1894. Alfred Wrench. Improvements in collapsable magic lantern (complete specification).
 12118. 22 June, 1894. William Arthur Dawkins. Improvements in and relating to limelight jets.
 12572. 28 June, 1894. Herbert Charles Newton. Improvements relating to optical lanterns (complete specification).

COMPLETE SPECIFICATIONS PRINTED.

- 14918 of 1893. Brins Oxygen Co., Ltd. and Murray. Producing oxygen from atmospheric air.
 4556 of 1894. Smith & Harman. Optical lanterns.
 6681 of 1894. Timmis. Storing compressed air, gas, &c.
 7914 of 1894. Scotch & Irish Oxygen Co., Ltd., and Brier. Testing gas cylinders.

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Editorial Table.

"KNOWLEDGE THROUGH THE EYE" is the title of a fifty-page book brought out by Messrs. Phillips & Co. of Fleet-street, E.C. It describes the various uses that the lantern can be put to in connection with class teaching. From its perusal one will be enabled to gain much useful information. The price is 1s.

CATALOGUE OF SUN CAMERA CO., LEEDS.—Unlike some catalogues this one contains information as to how to make some of the goods that are advertised therein. Articles descriptive of how to make a camera, lantern, tripod and hand-camera are given; chapters are also devoted to lacquering, finishing brass, &c. A large portion is devoted to materials and workshop fittings, the sketches and prices being given, for the most part, on alternate pages. Almost anything one may select in the brass fitting line will be found illustrated. The catalogue may be obtained post free from this firm, whose offices have lately been removed to Claypit-lane, Leeds.

"THE INSTITUTE AND LECTURERS' GAZETTE" for July contains a concise account of the various professional lectures given throughout the country during the previous month, together with a goodly list of advertisers who are open to accept engagements. The handbook containing list of lecturers belonging to the Lecturers' Institution (High-street, Newport Pagnell) is also to hand. It contains a full list of the members, and sets forth the particular features in which each excels.

BESSUS PLATE HOLDER.—This inexpensive yet effective plate holder has been introduced by Messrs. Aire & Co., 152, Farringdon-road, E.C. It can be used for holding the plate during manipulation of developing, &c., the plate being securely held without fear of scratching its surface. The prices are from 4d. each.

PHOTOGRAPHY ANNUAL, (1894) London, Iliffe & Son, 2s. 6d.—This Annual is to hand, in point of size, it contains many more pages than that for last year, whilst as regards the contents the articles and general information are of interest, and well up-to-date. Several high-class illustrations are dispersed throughout the 1,030 pages.

CATALOGUES, G. W. Wilson & Co., (Ltd.), Aberdeen.—Many new sets of Slides, are to be found in the new catalogue of this firm, including travel, manufacturing, illustrations of Burns poems, portraits, characters and types, sports of various kinds, a new comic set "North again, golfing this time," will be sure to make a hit this season. A London depôt has lately been opened by this firm at 8, Catherine-street, Strand, W.C.

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Correspondence.

Re WEEKS' PATENT METHOD OF MAKING SLIDES.

To the Editor.

DEAR SIR,—In last issue a somewhat sarcastic letter appeared by Mr. Hinkins, who describes himself as a slide designer and maker. He asks for details of my special patent process. If he is a man of business, he ought to know that now-a-days people are apt to keep certain information to themselves as long as they can. I happen to be one of that class, and unless he likes to wait until the patent specification is published, no amount of letter-writing on his part will persuade me to give him information, or go further into the subject.

In reply to the latter portion of the letter, Mr. Hinkins may perhaps be unaware that those who draw up patent applications do not usually give the title in such a manner as will enable a reader to fathom the whole affair; and as for his offer for he and I to meet at your office and compare the relative merits of slides, I fail to see why I should put myself to this trouble to satisfy him.

I know many firms who spend large amounts yearly upon their productions in a certain line, of which our patented methods absolutely and entirely *does without*. If the result to be gained by my method *had been available before* I sprung the idea, such firms would have avoided this expense all along, and would now if they could. *We can*, that is good enough for us, *we are satisfied*. I have been known "*professionally*" by every first-class firm in the trade since 1875, during which time I have made, professionally, nearly 7,000 slide designs, and so, with such experience, am not quite the novice Mr. H. seems to imagine me to be. Business, however, is business, and should he want information on the subject with which our patent deals, we have no objection to give him any information he may require, but it will entail on his part an expenditure of a large sum of money; so perhaps he will in the meantime find it better to mind his own business, and not try the old dodge of getting himself advertised on the cheap.

Thanking you in anticipation of your insertion of this letter in your columns.—I am, your truly,

FRANK F. WEEKS.

A STRANGE EXPLOSION.

To the Editor.

SIR,—A short time ago I mixed up some chlorate of potash and manganese, and in the course of an experiment placed a small quantity in a saucer with a few drops of sulphuric acid. By accident some water fell on the mixture, when a smart explosion, like a pistol shot occurred, and the contents of the saucer were scattered in all directions. Can any reader tell me the cause and what combination was brought about.

Yours truly,
FRIGHTENED.

THE LANTERN SOCIETY.

[HOW TO MAKE IT POPULAR.]

To the Editor.

SIR.—When the Lantern Society was first started it was stated at the inaugural meeting that one of its objects would be, that facilities would be given to its members to learn, or perfect themselves in the practical manipulation of the lantern itself, and appliances pertaining to such. Now, I ask, has this been carried out in any one way? True, the lantern has been used to describe, for the most part, pleasure tours made by its members and others; but have the members had any opportunity of presiding at the lantern and had their faults or omissions criticised "in a friendly way," as put forth as an inducement for members to join. With the way that the pictures have been shown there has been no fault to find, for if I mistake not, the instrument has been handled by the Secretary, a lanternist of experience and surely not in want of practice.

During the coming season I would suggest that members be afforded an opportunity in turn to rig-up and work the lantern, and that should a fault be made, that it will be pointed out by some member competent of doing so.

It is some considerable time since I ceased membership, as I rightly or wrongly came to the conclusion that unless one was a member of Parliament, the civil service, or held some such high position, they were not worthy of a voice in any management. True, I enjoyed two good evenings there, viz., when you, Mr. Editor, had the control of the evenings, and gave (1) practical demonstrations of the working of a triple lantern (2) saturators; and it was owing to the general invitation which you extended to readers to apply to you for tickets.

Cannot a series of good practical discussions, &c. be started. These I am sure, would be of much greater interest than the penny-reading style of thing that has occupied nine out of ten of the evenings. Should such a change be brought about, I, and I speak for others too, will have pleasure of rejoining the society.

Yours truly,
AN EX-MEMBER.

Re "G.'s" ENQUIRY ABOUT WEIGHTS FOR GAS BAGS.

To the Editor.

SIR,—I used to carry two canvas bags costing 1/-, measuring 15 x 20 inches, and fill them, more or less full according to weight required, at the place of exhibition with sand or gravel, previously requesting for sand or gravel to be ready. The empty bags take little room, not likely to leak, lay well on pressure boards in any position, and are easily obtained.

I am, sir, yours faithfully,
KNOWLEDGE IS POWER.

Notes and Queries.

Jas. Olgivie writes:—In last issue mention was made in an article headed "Tips" about asbestos wicks for oil lamps, where can they be obtained?—*Ans.*—The wicks in question are, we believe, ordinary wicks tipped with asbestos. They can be obtained from Messrs. Philips & Son, educational publishers, 32, Fleet-street, E.C.

Rev. P.—If you quote a price we will consider it.

T. W. Fields.—Write for particulars to Miss Cheshire, 130, Edgware-road, London, W.

F. Buckley.—Some improvements have lately been made in mixed jets which will enable house gas to be used from the main and oxygen from a cylinder, on the principle of an injector. The house gas is drawn from the mains at greater than its normal pressure, the pressure of the oxygen under compression enabling this to be done. With an ordinary mixed jet it would be unwise to use the hydrogen from the mains.

Limes.—They were, we believe, made of pipe-clay.

J. J.—We have time and time again replied to such queries. Send 2½d. for a Lanternist's Ready Reference Table and you will be able to tell at a glance the distance between lantern and screen to produce a certain size picture with any given focus of lens.

Artist.—We cannot supply the information, wait until the patent specification is published.

R.—Yes, if we accept it, but we can make no promise until we have an opportunity of reading it.

Purchaser.—We would recommend a bi-unial as being the best for your purpose.

S. Grant.—Surely you can manage a better signal to give than the common bell.

Ghost Box writes:—I am making a ghost box, but do not know what diameter of condenser to employ; what size would you advise?—*Ans.*—Six or eight inches is the usual diameter.

Oxygen.—We have never heard of the idea of adding ground coffee to the oxygen mixture. What is supposed to be the advantage?

H. Warden.—The firm you enquire about has been extinct for several years. We do not think anyone who was connected with it is yet alive.

W. Houldershaw.—From what has appeared in this journal it will be evident to you that the relative patentees have put the matter into the hands of their solicitors. We therefore prefer to abstain from publishing communications pertaining to the merits or demerits.

W. J. McCulloch, (Queensland).—We have handed the nipples to Mr. Brown.

Rev. Barnes.—The collecting lens is 3-in. thick in centre, and about 8-inches focus, 2 Concavo-convex.

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ANNUAL HOLIDAY.—On 23rd ult. the employees and friends of Mr. Walter Tyler (Waterloo Road) had their annual holiday outing. The party, consisting of about sixty, left Waterloo Station soon after 8 a.m. and arrived at Staines some three-quarters of an hour later, where, after a short adjournment they embarked on the steam launch *Countess* and proceeded to Marlow. Lunch was provided on board, and on reaching Marlow, Mr. Tyler had a surprise in store, for at the Greyhound a sumptuous dinner was in readiness. The greatest good feeling prevailed, amidst a variety of enjoyments. Returning from Marlow, tea was served on board, and every one was unanimous in their thanks to Mr. Tyler for inviting them to such an enjoyable outing. After the train journey, the party separated at Waterloo, but not before giving three hearty cheers to Mr. Tyler for his kindness.